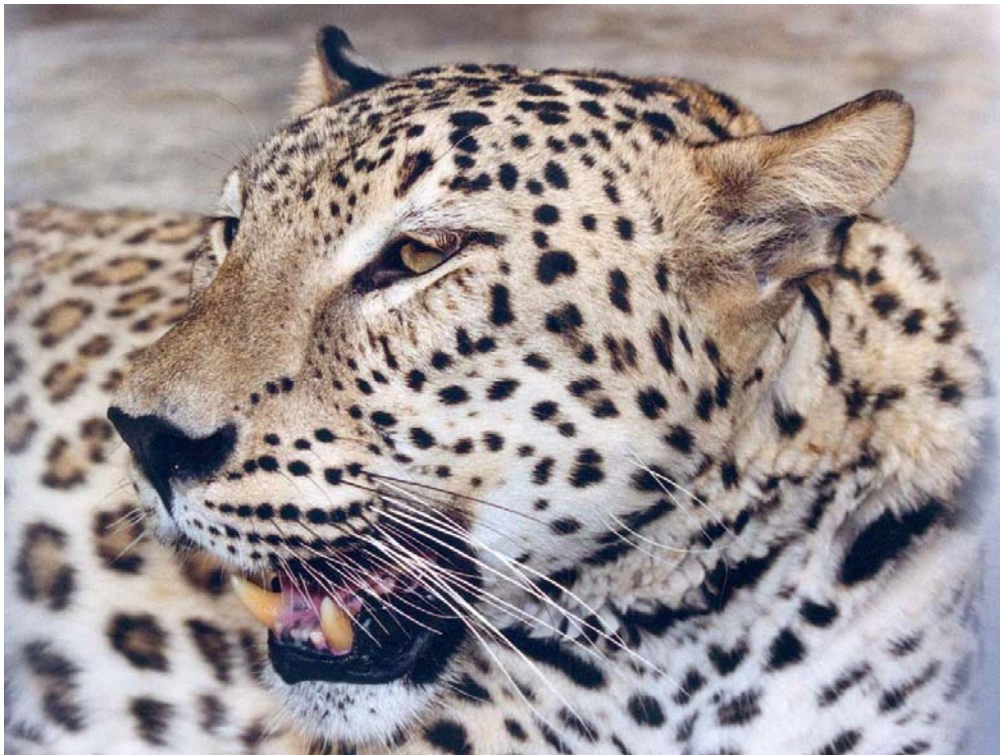# Strategy for the Conservation of the Leopard in the Caucasus Ecoregion

Results from the Strategic Planning Workshop on Leopard Conservation in the Caucasus

Tbilisi, Georgia, 30 May - 1 June 2007

CONTENTS

Acronyms

CBC   - Caucasus Biodiversity Council (not legally binding)
CCA   - Community conserved area
ECP   - An Ecoregional Conservation Plan
GO   - Governmental Organisation
NGO   - Non-governmental organisation
PA   - Protected Area
SSC   - Species Survival Commission

Executive Summary

The leopard in the Caucasus is under threat; only some small and isolated population nuclei remain in the whole ecoregion. To save the survival of the species in the Caucasus, urgent conservation actions are needed. Significant investment into the conservation of the leopard is justified as this charismatic large cat is both an umbrella species – its conservation will also include the preservation of the prey species and their habitats – and a flagship species – the leopard is the ideal carrier of the conservation idea to the local population, between the range states, and to the international conservation community.

Over the past years, WWF has undertaken considerable efforts to assess the status of the leopard in the Caucasus and developed approaches for its conservation. Considering the high ecological, cultural, and political diversity of the region, the poor economic situation in certain countries, and the fact that the leopard as a large carnivore is a conflicting species, it is obvious that the successful conservation of the species will not only depend on the knowledge and understanding of the experts, but rather on the favourable reception and implementation of a conservation strategy and action plans.

WWF has together with the IUCN/SSC Cat Specialist Group agreed on a three-step approach regarding the further development of a Caucasus leopard conservation programme:
1.   Compiling the present knowledge in a baseline information report (Status Report);
2.   Develop a Conservation Strategy for the leopard in the entire Caucasus ecoregion;
3.   Implement the Conservation Strategy through the development of National Action Plans.

The present situation of the leopard and its conservation in the Caucasus were summarised in six original papers, compiled as Status and Conservation of the Leopard in the Caucasus (*Cat News Special Issue No. 2, 2007*). This issue was distributed at the workshop to provide background information.

The next step was to develop a regional conservation strategy in a participatory workshop. **The aim of the Conservation Strategy is to define common goals and objectives, identify priority conservation actions at the range level, and provide guidance for the development and implementation of National Action Plans.**

The workshop was hosted by WWF Caucasus Programme Office and was held in Tbilisi, Georgia, 31 May – 2 June 2008. During the three day workshop, the participants agreed on a long-term vision for the conservation of the leopard in the Caucasus ecoregion as: *"Leopards and all wildlife prosper in natural habitats across the Caucasus ecoregion in harmony with people".* To achieve the vision, the mid-term goal has been defined as: *"Ensure the conservation and sustainable management of viable meta-populations of leopard and wild prey and their habitats and build sustainable coexistence mechanisms with local communities across the Caucasus ecoregion".*

The most obvious problem facing the leopard in the Caucasus ecoregion is the alarming reduction in its distribution area, resulting in a strongly fragmented population with an unknown, but without any doubt severely reduced number of animals left in the wild. The workshop participants have analysed the threats to the survival of the leopard, the knowledge or capacities lacking for its conservation (gaps), and the factors favouring conservation measures (enabling conditions).

To achieve the mid-term goal, eleven objectives were identified each with 1-4 targets and 1-5 activities selected to direct the achievement of each objective.

1. Introduction

The leopard in the Caucasus is critically endangered. New surveys and increased awareness have recently produced more evidence and even some spectacular photos of leopards in the Caucasus, but all new evidence has confirmed that only some small and isolated population nuclei remain in the whole ecoregion. To save the survival of the species in the Caucasus, urgent conservation actions are needed. Significant investment into the conservation of the leopard is justified as this charismatic large cat is both an umbrella species – its conservation will also include the preservation of the prey species and their habitats – and a flagship species – the leopard is the symbolic carrier of the conservation idea to the local population, between the range states, and to the international conservation community.

Over the past years, WWF has undertaken considerable efforts to assess the status of the leopard in the Caucasus and developed approaches for its conservation (*Zazanashvili et al. 2007*). Considering the high ecological, cultural, and political diversity of the region, the generally poor economic situation, and the fact that the leopard as a large carnivore in need of extended suitable habitat is sometimes a conflicting species, it is obvious that the successful conservation of the Caucasus' top predator will not only – probably not even mainly – depend on the knowledge and understanding of the experts, but rather on the constructive cooperation between the Range Countries where feasible and across interest groups and the favourable reception and implementation of a Conservation Strategy and National Action Plans.

Any viable leopard population or sub-population in the Caucasus will stretch across international borders. The suitable habitat in each country is limited and most often situated in remote border areas. In the past, and very clearly also in the future, the Caucasus occurrences depended on immigration from the source populations in the south, mainly in Iran. Consequently, we need to agree on common conservation goals and principles for the leopard across the ecoregion.

From May 30 to June 1, 2007, representatives from the most of Range Country agencies, exponents of nature conservation organisations, and wildlife scientists met in Tbilisi, Georgia, to develop in a participative process a comprehensive Conservation Strategy for the leopard in the Caucasus. This Strategy is required to be supported by relevant governmental organisations of the Range Countries and will form the common ground for the development of National Action Plans. The Strategy reviews threats to the leopard in the Caucasus, defines common goals and objectives, and targets and actions on the range level, for cross-border issues, or valid for all countries. The management units, however, are the countries, and consequently, National Action Plans need to be developed as catchy tools for the implementation of the conservation activities, based on the principles outlined in this Strategy. To provide background information for the development of sound conservation plans, a series of six articles reviewing the status of the leopard, its prey and habitats in the Caucasus was published in *Cat News Special Issue 2, 2007, Status and Conservation of the Leopard in the Caucasus*.

2. Distribution and Status of the Leopard in the Caucasus Ecoregion

Leopards were once distributed across the whole Caucasus region except in open steppes and semideserts. Several different forms and subspecies have been reported from the Caucasus, but the taxonomic situation has since been clarified. It is now generally accepted that all leopards in the Caucasus ecoregion, northern Iran, and Central Asia belong to a single subspecies, *Panthera pardus saxicolor* (= *P.p. ciscaucasica*). A rapid decline in leopard range and numbers has taken

place, due to a large extent to hunting, persecution, trapping and poisoning. By the mid-20th century leopards had disappeared from large parts of the ecoregion and, with the exception of Iran, the former range had been reduced to isolated patches.

Much of the early information was based on information from hunters, incidental records and anecdotal reports. In recent years, and more especially since 2001, a large amount of effort has been invested by many organisations and individuals in systematic surveys based on searches for field signs, camera trapping, and questionnaires. The results of these surveys were described in chapter 3 of the status report (*Lukarevsky et al. 2007*) while some additional records were made available at the Tbilisi workshop. Figure 1 shows an updated distribution map for the leopard in the Caucasus region.

Fig. 1. Updated map of distribution of leopard signs in the Caucasus ecoregion. Blue squares represent transects with leopard signs carried out by V. Lukarevsky and co-workers on behalf of WWF from 1999-2005 *(Lukarevsky et al. 2007)*, orange symbols indicate leopard presence from the literature since 1990. Dots are hard fact observations, squares are other confirmed records. Yellow triangles with numbers were collected during the workshop in Tbilisi in May 2007 from Halim Diker and Abdulreza Mahsoud. (1) Leopard shot near Yusufeli in 2000. (2) Leopards have been observed in 2006 in the forested area in E-SE of Ağrı Dağı (Mount Ararat). On the Iranian side, a leopard was shot in 2006. (3) Pugmark of a leopard found in Küpeli Dağları [mountains], W and NW of Sirnak. (4) Giresun. A man found 2 leopard cubs in a cave in 'Eastern Black Sea part' in 2004 and took them home, he was later arrested. (5) Poachers report killing a leopard near Şemdinli. (6) Soldiers reported large cats south of Uludere. (7) Sabalan mountains [Kuhha-ye-Sabalan]; (8) Lake Urumiyeh, east side; (9) East Azerbaygan.

In Armenia, the presence of leopards in Khosrov Reserve is well-established. Southern Armenia and neighbouring areas of Azerbaijan also form an important area for leopards. The most significant sites are the Meghri and Zangezur ridges, Nakhchyvan, Murovdag and Karabakh. Elsewhere in Azerbaijan, leopards are present in the Talysh Mountains in the far southeast. Their occurrence here is continuous with that on the Iranian side of Talysh Mountains. Leopards also survived in northwest Azerbaijan in the Akhar-Bakhar section of Ilisu Reserve in the foothills of the Greater Caucasus until recently, but current numbers are extremely low. In Georgia, one animal has lived for the last few years in Vashlovani Reserve in the southeast, the first occurrence in this area for about 50 years, and located not far from Ilisu in Azerbaijan. Elsewhere in Georgia, recent leopard signs, backed up by local reports, have been found at two localities in Tusheti, the headwaters of the Andi Koisu and Assa rivers, bordering Dagestan.

In Russia, signs of leopard presence have been found in Dagestan (especially the upper Andi/Andiyskoe Koisu and Avarskoye Koisu drainages. According to local reports leopards may also occur in Ingushetia, Ossetia and Chechnya, all of which lie on the northern side of the Greater Caucasus. Leopards no longer occur in the western part of the Greater Caucasus, where the feasibility of reintroduction to Kavkazskiy Reserve is currently under consideration.

Intensive survey work has been conducted in northeastern and eastern Turkey in recent years but confirmed records of leopards are few. The skin of a leopard killed in 2000 near Yusufeli was photographed in 2007 and local people report continued leopard presence there. There are local reports of leopards from the area around Ağrı Dağı (also known as Mount Ararat) in 2006 and a leopard shot by poachers, reportedly from just across the Iranian border, was photographed in 2007. There are earlier published accounts and photographs of leopard skins obtained in Ağrı Dağı in 1972 and Kars in 1970. Another recent local report comes from the Karadeniz Mountains near Giresun. Leopards are also reported from three further localities in eastern Turkey, but lying outside the Caucasus ecoregion. Leopard pugmarks were photographed by Halim Diker in 2004 in the Küpeli Dağları near Şırnak. In autumn 2000 a leopard was killed by poachers near Bitlis, south-west of Lake Van and the skin photographed in 2007. Poachers report killing another young leopard in the same area in 2006 but the skin was sold. Poachers have also reported killing leopards near Şemdinli in the extreme south-east and there are other verbal reports of leopards south of Uludere, and near Rize. These have not yet been confirmed by photographs or specimens.

Leopards are widely distributed in the Iranian part of the Caucasus ecoregion and Iran holds the largest population. Leopards occur in the Iranian sector of the Talysh Mountains, in the western Alborz range, in ten protected areas and some non-hunting zones along the borders with Azerbaijan and Armenia, and the Sabalan Mountains on the ecoregion border, as well as at sites further south, including Islami island of Lake Urmia. The Alborz Mountains link the Caucasus to leopard populations in northeast Iran and Central Asia, while the other sites in the northwest may serve as a link to leopard range further south and east, such as in the Zagros Mountains.

Field surveys have not been exhaustive and some promising localities remain for further investigation, either to confirm the occurrence of leopards or to establish the size and status of populations. All known populations are believed to be small and overall numbers are very low. Provisional estimates suggest there are probably fewer than 15 leopards in the Greater Caucasus and perhaps 50 in the Lesser Caucasus (without the recent records from Turkey). The lack of quantified demographic data and regular monitoring makes it difficult to assess population trends. Furthermore, the extremely low population ceilings imply that most remnant populations are at risk of at least temporary extirpation. In fact the degree of isolation of individual subpopulations is unclear. This applies particularly to the Greater Caucasus. Establishing whether the Caucasus leopard is one metapopulation, assessing the extent of movements of individuals between

subpopulations and identifying potential corridors are important tasks at the ecoregional level. There seems no doubt that Iran is a regional stronghold and that the survival of the Caucasus leopard has been sustained by at least occasional dispersal from Iran.

The persistence of small and apparently isolated groups demonstrates the resilience of the leopard. Pessimistic forecasts made 35 years ago that the leopard would soon be extinct in the Caucasus region have still not been realised. This gives some hope that the conservation measures proposed in this strategy will succeed in conserving the Caucasus leopard in the future.

3. Workshop Process

The procedure used to develop the Conservation Strategy for the leopard in the Caucasus was a facilitated logical framework approach (LogFrame, Box 1; *Breitenmoser et al. 2007*). The participants first formulated a long-term **Vision** and a mid-term **Goal**, setting the landmark at the horizon. The problem analysis (Chapter 4) revealed the obstacles on the way to the destination. Then, a number of **Objectives** that should allow to overcome the difficulties and to reach the *Goal* was identified. These *Objectives* were subsequently broken down into more concrete **Targets** and **Activities**. The Strategy provides guidance for the conservation of the leopard in the Caucasus on the range level. Hence, the *Objectives*, *Targets* and *Activities* listed hereafter refer to tasks, which have to be addressed on a regional level or require international cooperation. In most cases, however, *Action* will have to be taken by a range country and should therefore be organised in detail through the National Action Plans. Most of the *Targets* and *Activities* listed hereafter lack a timeframe and specification of a responsible actor, as the participants of the workshop in Tbilisi did not feel entitled to attribute assignments to institutions not represented at the Tbilisi meeting. Nevertheless, the workshop participants prioritised threats, *Targets* and *Activities* by country (Chapter 5.1) and identified the national agencies responsible for the endorsement and involved in the implementation of the Strategy or the National Action Plans, respectively. The range country matrices should help to concretise the *Targets* and *Activities* listed in the Strategy when developing the National Action Plans.

After the problem analysis (Chapter 4), four working groups formulated specific *Objectives* allowing to counteract the threats and to meet the *Vision* and the *Goal*. The groups addressed the following themes:

1.   Populations and species;

2.   Important places – habitat and corridors;

3.   Human dimension and socio-economic circumstances.

4.   Policy, legislation and international cooperation

Many of the more general *Objectives*, such as raising awareness and building capacity, were proposed by more than one group and then merged in the plenary discussion. Finally, the workshop participants retained 11 *Objectives*, 26 *Targets* and 74 *Activities*.

BOX 1 – Logical Framework

The logistic framework (LogFrame) is a widely used methodology in participative workshops improving the performance of interventions. A LogFrame approach allows working together in defining visions and goals, analysing the problems, and developing solutions in form of objectives, targets and activities. The LogFrame used for the development of the Conservation Strategy for the leopard in the Caucasus can be visualised in form of a pyramid:
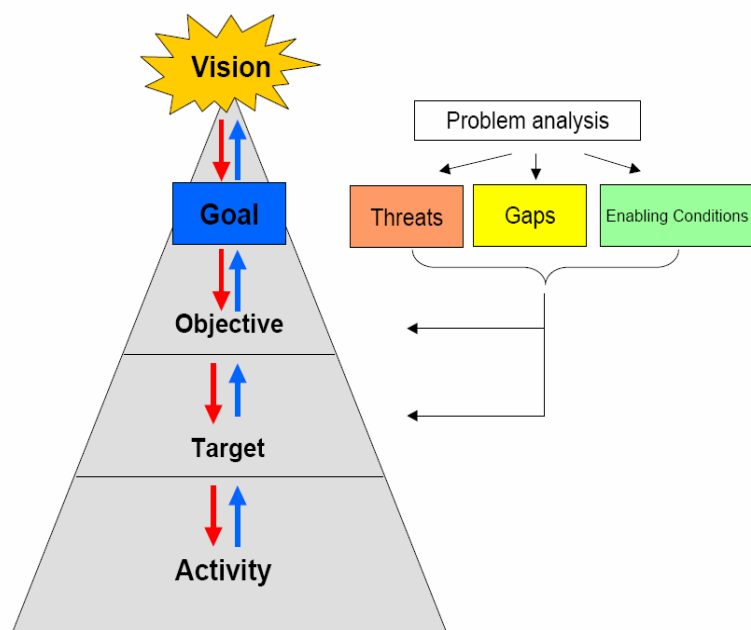
Vision: A guiding vision – describing the world and its biodiversity we are seeking to preserve for the next ~25 years.

Goal: The particular goal we want to reach within 10–20 years according to our vision.

Objective: Several objectives to fulfil the goal reflecting our expertise and strength (timeframe about 5 years).

Target: Specific targets describing the partners'contribution to the objective within the next 3–5 years.

Activity: Activities for the next 1–3 years required for achieving a target.

Part of the LogFrame is the problem analysis to identify threats, gaps and enabling conditions to the survival or conservation of the leopard. The definition of a *Vision* and a *Goal* and the identification of the threats allow then to specify *Objectives*, *Targets* and *Activities* to counteract the threats and to meet the goal.

4. Problem Analysis

The obvious problem of the leopard in the Caucasus ecoregion is its very limited distribution and the alarmingly limited size of the remaining nuclei (Fig. 1). The effective number of animals left in the wild is not known, but it is without any doubt dangerously reduced (*Lukarevsky et al. 2007*). Such a fragmented and small population is not viable. To counteract the decrease, the reasons for the downfall have to be known. The workshop participants split into four working groups, analysing the following subject: (1) threats to the survival of the leopard, (2) gaps in our knowledge and capacity for its conservation, and (3) enabling conditions furthering leopard preservation in the Caucasus ecoregion. Each aspect identified was then scored according to its importance to the survival of the leopard and the capacity of the conservation community to address this challenge (Table 1).

Table 1. Assessment (scores) of threats, gaps and enabling condition in regard to their importance for leopard survival and our capacity to influence these aspects		
Score	Threats & Gaps	Enabling Conditions
Importance:		
1	Least important and not very urgent	Slightly favourable
2	Severe, should be addressed as soon as possible	Moderately favourable
3	Very severe, must be addressed immediately	Very favourable
Capacity:		
1	Low – we have very limited possibilities to improve or influence	
2	Medium – difficult to address or change, but not impossible	
3	High – we have capacity and means on hand to address and influence	

The problem analysis assesses the reasons for the decline of the leopard, the difficulties to overcome for its effective conservation today, and the factors enabling saving the species. The identification of threats, gaps and enabling conditions helps the formulation of realistic *Targets* to encounter these problems and to meet the *Goal* and *Objectives* (Chapter 5). The threats, gaps of knowledge and enabling conditions listed hereafter are sorted according to the working group themes: 1) species and populations, 2) important places, 3) human dimension and socio-economic circumstances, and 4) policy, legislation and international cooperation.

	Importance	Capacity
Species and Populations		
Threats		
Poaching of leopards	3	2
Poaching of prey	3	2
Decline in prey base	3	2
International border fortifications and presence of military and troops' training in border areas	2	1
Gaps		
Lack of knowledge exchange	3	3
Exact distribution	2	3
Population structure	2	3
Unified monitoring and research methods	2	3
Knowledge on effective compensation mechanisms	2	2
Influence of diseases	2	2
Local expertise in biology of the species	2	2
Enabling conditions		
High profile of the species	3	2
Ongoing conservation projects	3	2
Important places		
Threats		
Deforestation	3	2
Fire	2	2
Overgrazing	2	2
Agriculture expansion	3	2
Infrastructure development	3	2

	Importance	Capacity
road construction	3	2
Pipeline construction	2	1
Dam construction	2	1
Mining	3	1
Gaps		
Very limited info on corridors and core areas for leopard metapopulation	3	2
Insufficient information on current habitat status suitable for leopards	2	3
Lack of research on the ground on leopard and habitat interaction	3	2
No common habitat classification standard in the Caucasus	2	2
Enabling conditions		
Expanding of existing and creation of new PAs	3	2
Removal of cattle from forests in Iran	3	3
Existing expertise	2	3

Human Dimension and Socio-Economic Circumstances

Threats

	Importance	Capacity
Erosion of customary knowledge and relations with nature	3	2
Defence of livestock	2	2
Poverty	3	1
Gaps		
Very limited information on Human-leopard conflicts	3	2
Indigenous knowledge about human-leopard attitude	2	2
Economic value of wildlife and nature	2	2
Historical information on distribution, status, etc.	3	2
Gap analysis of leopard ecology	2	3
Role of community conserved areas	2	2
Partnership approaches and engagement of stakeholders in governance and management	3	2
Lack of communication and information sharing	3	3
Lack of awareness of all stakeholders	3	3
Enabling Conditions		
Existing network of protected areas	3	2
Multilateral and bilateral donors	3	3
Caucasus Biodiversity Council	3	3
ECP	3	3
National NGOs	3	3
International NGOs	3	3
Existing international funding	3	2
Recognition of community conserved areas	2	2

Policy, Legislation and International Cooperation

Threats

	Importance	Capacity
Political instability	3	1
Improper environmental policy	3	2
Poor law enforcement and patrolling	3	2
Low international cooperation	2	2
Lack of adequate policy and legislation	1	3

	Importance	Capacity
Gaps		
Low public awareness	3	2
Environmental education	2	3
Insufficient information on illegal trade with derivatives	2	2
Lac k of knowledge of national legislation by different conditions	1	2
Enabling conditions		
Will of the countries of the ecoregion	3	3
Ecoregional exchange of expertise/knowledge	3	3
Governmental support for leopard conservation	3	3/2
Ecoregional cooperation under ECP	3	3/2
Environmental conventions/treaties	3	2
Bi- and multilateral cooperation agreements government/civil society	3	2
Implementation of the Russian programme	2	3
Improving legal framework		
Political instability	3	1

5. Conservation Strategy

Vision and Goal

Our long-term **Vision** for the conservation of the leopard in the Caucasus ecoregion is:

> *Leopards and all wildlife prosper in natural habitats across the Caucasus ecoregion in harmony with people.*

This vision should be aimed for by means of the following mid-term (about 10 years after the implementation of the Strategy) **Goal**:

> *Ensure the conservation and sustainable management of viable meta-populations of leopard and wild prey and their habitats, and build sustainable coexistence mechanisms with local communities across the Caucasus ecoregion.*

Objectives, Targets and Activities

After the problem analysis (Chapter 4) and the definition of Vision and Goal, the four working groups formulated specific **Objectives** allowing to counteract the threats and to meet the Vision and Goal.

Objective	Target	Activities
Species and Populations		
1. Increase the viability of the known leopard and prey populations in the ecoregion	**1.1**. Existing leopard and its wild prey populations are secured and stabilized by 2014 in the ecoregion	**1.1.1.** Halt poaching of leopards and its prey by organizing anti-poaching activities in leopard habitat (inside and outside of protected areas)
		1.1.2. Effectively regulate hunting of wild prey for the benefit of leopards (inside and outside of protected areas)
		1.1.3. Elaborate and organize effective compensation mechanisms for livestock losses to leopards in relevant areas
	1.2. Corridors and stepping stones for leopards are secured by 2014 in the ecoregion	**1.2.1.** Identify important corridors and stepping stones
		1.2.2. Maintain integrity of corridors and stepping stones by preventing barriers (e.g. roads, railways, etc.)
		1.2.3. Protect stepping stones as protected areas where feasible
		1.2.4. Manage the land use in stepping stones and corridors which are not protected areas in a way it benefits leopards
	1.3. The existing leopard population in the Caucasus is expanding significantly – by at least 1/3 – by 2017	**1.3.1.** Manage the land use around existing leopard nuclei outside protected areas for the benefit of leopards
2. Complete survey for leopards and wild prey of the entire ecoregion and establish a joint, standardized monitoring system and research programme and central database	**2.1.** Survey of leopards in the ecoregion is completed by 2010	**2.1.1.** Conduct surveys in potential leopard habitat currently not yet surveyed
	2.2. A joint, standardized monitoring system is completed and launched by 2010	**2.2.1.** Develop standardized monitoring system for leopards and its wild prey
		2.2.2. Find and train experts in each range country for monitoring activities
		2.2.3. Find and train personnel

Objective	Target	Activities
		of protected areas in each range country for monitoring activities **2.2.4.** Start to monitor leopards in all relevant areas according to the joint, standardized methodology
	2.3. A joint research programme on leopards and its wild prey is launched by 2010	**2.3.1.** Build up a network of universities and researchers in range countries as well as internationally interested in leopard conservation and research **2.3.2.** Determine gaps in leopard conservation biology **2.3.3.** Launch research programmes **2.3.4.** Organize regular exchange of knowledge and experience on leopard research
3. Promote the creation of new leopard populations through reintroduction where feasible	**3.1.** The feasibility of reintroducing leopards is assessed according to IUCN standards by 2010	**3.1.1.** Organize a workshop with relevant international and Caucasus range country participation to critically review possible approaches to enhance leopard populations, including reintroduction programmes (e.g. project in western Caucasus in Russia) and seek endorsement from relevant IUCN specialist groups **3.1.2.** Assess the necessity and feasibility of reintroducing leopards across the leopard's historic range in the Caucasus

Important Places – Habitat and Corridors

Objective	Target	Activities
4. Establish an effectively managed network of protected areas and corridors for the conservation of leopard throughout the ecoregion	**4.1.** Regional plan of PA and corridors network for leopard conservation is prepared and adopted by relevant governmental organisations of ecoregion countries by the end of 2009	**4.1.1.** Organize an inception workshop with the involvement of GOs and NGOs to agree on tasks and methodology **4.1.2**. Carry out research and assessment throughout the ecoregion **4.1.3**. Hold final workshop for agreement with the involvement

Objective	Target	Activities
		of GOs and NGOs
		4.1.4. Prepare draft plan
		4.1.5. Carry out final review and secure approval by relevant governmental bodies
	4.2. At least one new PA per ecoregion country for leopard conservation is established or expanded by 2010	**4.2.1.** Identify of potential Protected Areas
		4.2.2. Declare new Protected Areas according to regional plan
	4.3. At least one corridor per ecoregion country for the leopard conservation is legally protected by 2010	**4.3.1.** Identify the corridors (see also Activity 1.2.1)
		4.3.2. Ask CBC to carry out activities for the international corridors
		4.3.3. Develop legal basis for corridors in ecoregion countries
		4.3.4. Declare legal protection
	4.4. Key Protected Areas in leopard habitats are effectively managed by 2010	**4.4.1.** Prepare management guidelines for leopard conservation in most important Protected Areas
		4.4.2. Start implementation of management guidelines at least in one Protected Area per country
5. Improve management of leopard habitats outside of protected areas	**5.1.** Most important areas of leopard distribution outside Protected Areas are sustainable managed by the end of 2010	**5.1.1.** Ensure legal basis for land and resource/landscape planning in the ecoregion countries
		5.1.2. Develop or elaborate land and resource use/ landscape plans for key and potential areas of leopard distribution, considering community conserved areas (CCA), and ensure adoption by relevant governmental organisations by the end of 2010
		5.1.3. Implement plan in at least one area per country by 2010
	5.2. Knowledge of local communities and officials on	**5.2.1.** Publish documents/visual training materials

Objective	Target	Activities
	leopard and its habitats are increased for sustainable use of natural resources in their surroundings in collaboration with relevant stakeholders by 2010	
		5.2.2. Conduct capacity building activities for local stakeholders (including border guards)
		5.2.3. Carry out media activities
		5.2.4. Develop and implement school training programs
	5.3. Model projects for sustainable use of natural resources and alternative income generation are in action by 2009	**5.3.1.** Conduct social studies and identify economic opportunities
		5.3.2. Implement at least one demonstration project in most important leopard habitats in each country
		5.3.3. Disseminate lessons learned in demo projects throughout the ecoregion
Human Dimension and Socio-economic Circumstances		
6. Ensure long term support to and from local communities for the leopard and wildlife conservation	**6.1.** By 2012 social-economic programmes elaborated and implemented at least in 50% of groups of communities in and around leopard habitats	**6.1.1.** Identify local communities and their natural clusters and groupings in and around leopard habitats
		6.1.2. Conduct participatory social–economic surveys and elaborate social-economic development programme for the communities in full collaboration with them
		6.1.3. Implement the programme in partnership with the communities, governments, NGOs, donors and other stakeholders
7. Endogenous conservation of natural resources and sustainable livelihoods are complementing each other	**7.1.** Vibrant and effective customary institutions are capable of conserving natural resources and supporting sustainable livelihoods	**7.1.1.** Establish communication with communities in and around leopard habitats

Objective	Target	Activities
		7.1.2. Help restore /update customary institutions
	7.2. Traditional knowledge for biodiversity conservation is revived in at least 50% of the community clusters identified in 6.1.1 and in the service of conservation and sustainable livelihoods by 2012	**Activity 7.2.1.** Hold participatory workshops with community elders (female and male) in the selected community clusters to identify the traditional knowledge and customary institutions of resource management
		7.2.2. Restore traditional knowledge and document it where appropriate and the customary institutions of resource management
		7.2.3. Support the local communities involved to formalise and register their restored customary institutions
		7.2.4. Strengthen their capacities to effectively interact with, and receive support from, outside institutions (political, technical, financial…)
	7.3. Sustainable livelihoods ensured for at least 30% of the clusters of communities defined in 6.1.1. in and around leopard habitats by 2012.	**7.3.1.** Elaborate in partnership with communities sustainable livelihood programme for each community
		7.3.2. Implement in partnership with communities sustainable livelihood programme for each community
	7.4. Equitable compensation mechanisms for loss of livelihood due to human-leopard conflict for the communities in and around the key habitat of the leopard are in place by 2012	**7.4.1.** Elaborate and form compensation mechanisms
		7.4.2. Implement compensation scheme
8. Awareness on the conservation of the leopard in the Caucasus is improved in all stakeholder/rightholder groups at all levels	**8.1.** By 2011 at least 80% of decision makers and authorities are aware and actively supporting the conservation of the leopard in	**8.1.1.** Identify relevant groups in each country

Objective	Target	Activities
	each country of the Caucasus	**8.1.2.** Elaborate and implement awareness programmes for them
	8.2. By 2011 at least 50% of communities in the leopard habitat area identified in 6.1.1. are aware and actively supporting the conservation of the leopard in each country of the Caucasus	**8.2.1.** Elaborate and implement education programme for schools
		8.2.2. Elaborate and implement awareness programme for communities
	8.3. By 2011 at least 30% of mass media representatives, NGOs, scientific institutions, universities and other groups of civil society are aware and actively supporting the conservation of the leopard in each country of the Caucasus	**8.3.1.** Identify partners within mass media, NGOs, scientific institutions, universities and other groups of civil society
		8.3.2. Elaborate and implement awareness programme for mass media, NGOs, scientific institutions, universities and other groups of civil society
Policy, Legislation and International Cooperation		
9. Strengthen international cooperation in leopard conservation	**9.1.** Illegal trans-border trade of leopards and derivatives is stopped	**9.1.1.** Train customs and border services in the identification of species included in CITES and national protected species lists **9.1.2.** Exchange information between national security services on illegal movement of leopard parts and derivatives **9.1.3.** Elaborate a unified international protocol for control of movements of leopard derivatives
	9.2. International memorandum(s) on leopard conservation in the Caucasus ecoregion is signed as feasible considering current political situations	**9.2.1.** Prepare the text of an agreement(s)
		9.2.2. Gain agreement(s) on the text of the agreement by

Objective	Target	Activities
		countries concerned
		9.2.3. Secure support of the Caucasus leopard strategy by Caucasus countries
	9.3. Expert group for coordination of conservation and research work on leopards in the Caucasus formed	**9.3.1.** Send representative(s) from each country to the working group
		9.3.2. Explore possibility of establishing working group under CBC
10. Optimize existing legislation and if necessary develop new legislation	**10.1.** Existing legal frameworks analyzed by 2010	**10.1.1.** Prepare scientific and other thematic documentation
		10.1.2. Prepare recommendations for changes (additions) to legislations
11. Secure funding for all conservation activities for the leopard in the Caucasus	**11.1.** Funds secured from international and national organizations for financing work on the conservation of the leopard	**11.1.1.** Carry out publicity and awareness on the essential participation of organisations in financing of work for the conservation of the leopard
		11.1.2. Prepare grant-applications among civil society, NGOs and institutions and other sources for conservation of the leopard and its prey.
		11.1.3. Seek financial support from big business sector.

6. Implementation of the Conservation Strategy for the Leopard in the Caucasus

This Strategy for the conservation of the leopard in the Caucasus is an instrument to recover a viable meta-population of leopard across the ecoregion. It needs to hence be supported and implemented in Range Countries, and it should regularly be reviewed and, whenever adequate, updated and adapted to new developments or insight.

Table 2. Country matrix problem analysis: Threats, Gaps and Enabling Conditions by range country. Ar = Armenia, Az = Azerbaijan, Ge = Georgia, Ir = Iran, Ru = Russia, Tu = Turkey. ○ important; ● very important/urgent for the respective country; – not important or not applicable. Complete description of Threats, Gaps and Enabling Conditions are presented in Chapter 3. Top = topics of working groups 1 to 4: 1 = Populations and species; 2 = Important places – habitat and corridors, 3 = Human dimension and socio-economic circumstances, 4 = Policy, legislation and international cooperation

Top	Item/topic	Ar	Az	Ge	Ir	Ru	Tu
	Threats: what are current threats to the survival of the leopard?						
1	1. Poaching of leopards	●	●	○	○	●	●
1	2. Poaching of prey	●	○	●	●	●	●
1	3. Decline in prey base	●	○	●	●	●	○
1	4. International border fortifications and presence of military and troops' training in border areas	●	○	●	○	–	–
2	5. Deforestation	●	○	●	○	○	○
2	6. Fire	●	○	○	–	○	–
2	7. Overgrazing	○	●	○	○	–	○
2	8. Agriculture expansion	○	○	○	○	–	○
2	9. Infrastructure development	○	○	–	●	–	○
2	10. Road Construction	●	–	–	●	–	○
2	11. Pipeline Construction	○	–	–	–	–	○
2	12. Dam Construction	–	–	–	●	–	●
2	13. Mining	●	○	–	○	–	○
3	14. Erosion of customary knowledge and relations with nature	○	●	○	●	–	○
3	15. Defense of livestock	○	●	●	●	○	●
3	16. Poverty	○	○	●	○	●	○
4	17. Political instability	●	–	–	–	○	○
4	18. Improper environmental policy	●	–	●	–	–	○
4	19. Poor law enforcement and patrolling	●	○	●	●	○	●
4	20. Low international cooperation	●	○	○	●	○	●
4	21. Lack of adequate policy and legislation	○	–	–	○	–	○
	Gaps						
1	1. Lack of knowledge exchange	○	○	○	○	–	○
1	2. Exact distribution	○	○	●	○	○	●
1	3. Population structure	○	●	●	●	○	●
1	4. Unified monitoring and research methods	○	○	○	○	–	●
1	5. Knowledge on effective compensation mechanisms	○	–	●	○	–	○

Top	Item/topic	Ar	Az	Ge	Ir	Ru	Tu
1	6. Influence of diseases	○	○	○	○	—	—
1	7. Local expertise in biology of the species	○	○	○	○	—	●
2	8. Very limited info on corridors and core areas for leopard meta-population	●	●	●	●	—	●
2	9. Insufficient information on current habitat status suitable for leopard	○	○	●	●	—	○
2	10. Lack of research on the ground on leopard and habitat interaction	○	○	●	●	—	●
2	11. No common habitat classification standard in the Caucasus	●	—	○	●	—	○
3	12. Very limited information on Human-leopard conflicts	○	○	○	○	—	●
3	13. Indigenous knowledge about human-leopard attitude	○	○	—	●	—	○
3	14. Economic value of wildlife and nature	●	○	●	○	○	○
3	15. Historical information on distribution, status, etc.	○	○	○	○	—	●
3	16. Gap analysis of leopard ecology	○	○	○	○	—	●
3	17. Role of community conserved areas	●	○	○	●	—	○
3	18. Partnership approaches and engagement of stakeholders in governance and management	●	○	—	●	—	●
3	19. Lack of communication and information sharing	●	○	—	●	—	●
3	20. Lack of awareness of all stakeholders	●	○	●	●	—	●
4	21. Low public awareness	○	○	●	○	—	●
4	22. Environmental education	●	●	●	○	—	●
4	23. Insufficient information on illegal trade with derivatives	○	○	●	○	○	●
4	24. Lack of knowledge of national legislation	○	—	—	○	○	○
	Enabling Conditions						
1	1. High profile of the species	●	●	○	○	●	●
1	2. Ongoing conservation projects	●	○	●	●	●	○
2	3. Expanding of existing and creation of new Pas	●	●	●	○	●	●
2	4. Removal of cattle from forests in Iran	○	—	—	○	—	—
2	5. Existing expertise	○	—	○	○	○	○
3	6. Existing network of protected areas	●	●	●	○	●	●
3	7. Multilateral and bilateral donors	●	●	●	—	●	●
3	8. Caucasus Biodiversity Council	●	●	●	○	○	●
3	9. ECP	●	●	○	○	○	●
3	10. National NGOs	●	●	●	●	●	●
3	11. International NGOs	●	●	●	○	○	●
3	12. Existing international funding	●	○	●	—	●	●
3	13. Recognition of community conserved areas	●	○	—	—	—	○
3	14. Co-management (partnerships)	●	—	○	—	●	●
3	15. Media support	●	○	○	○	●	●
3	16. Awareness and environmental education of local people	●	○	—	—	○	○
3	17. Positive Attitudes of hunters towards predators	●	○	—	—	○	○

Top	Item/topic	Ar	Az	Ge	Ir	Ru	Tu
4	18. Will of the countries of the ecoregion	●	○	—	○	●	●
4	19. Ecoregional exchange of expertise/knowledge	●	○	○	○	●	○
4	20. Governmental support for leopard conservation	○	●	—	○	●	●
4	21. Ecoregional cooperation under ECP	○	○	○	—	○	●
4	22. Environmental conventions/treaties	○	○	○	○	●	●
4	23. Bilateral and multilateral cooperation agreements government/civil society	○	○	○	●	●	○
4	24. Implementation of the Russian programme	—	—	—	—	●	—
4	25. Improving legal framework	○	○	○	○	—	●

Table 3. Country matrix Objectives and Targets by range country: Ar = Armenia, Az = Azerbaijan, Ge = Georgia, Ir = Iran, Ru = Russia, Tu = Turkey. ○ important; ● very important/urgent for the respective country; – not important or not applicable. Complete description of Objectives and Targets are presented in Chapter 4.

Objective/Target	Ar	Az	Ge	Ir	Ru	Tr
Objective 1: Increase the viability of the known leopard and prey populations						
Target 1.1. Existing leopard and its wild prey populations are secured and stabilized	●	●	●	●	●	●
Target 1.2. Corridors and stepping stones for leopards are secured	●	●	●	●	●	●
Target 1.3. The existing leopard population is expanding by at least 1/3	○	●	●	○	?	●
Objective 2: Survey for leopards and prey, standardized monitoring and research						
Target 2.1. Survey of leopards in the ecoregion is completed	●	●	●	○	●	●
Target 2.2. A joint, standardized monitoring system is completed and launched	●	●	●	○	●	●
Target 2.3. A joint research programme on leopards and its wild prey is launched	●	●	○	○	○	●
Objective 3: Promote the creation of new leopard populations through reintroduction						
Target 3.1. Feasibility of reintroducing leopards assessed according to IUCN standards	-	-	○	○	●	○
Objective 4: Establish a managed network of protected areas and corridors						
Target 4.1. Regional plan of PA and corridors for leopard conservation prepared and adopted	●	○	●	○	●	●
Target 4.2. One new PA per ecoregion country for leopard conservation established	●	○	●	○	○	●
Target 4.3. One corridor per country for leopard conservation legally protected	●	○	●	○	○	●
Target 4.4. Key Protected Areas in leopard habitats effectively managed	●	●	●	●	●	●
Objective 5: Improve management of leopard habitats outside of the protected areas						
Target 5.1. Important areas of leopard distribution outside PAs sustainably managed	●	○	●	●	○	●
Target 5.2. Knowledge of local communities and officials on leopard and habitats increased	●	○	○	●	○	●
Target 5.3. Model projects for sustainable use of natural resources and alternative income	●	●	●	○	●	●
Objective 6: Ensure long term support to and from local communities for leopard/prey						
Target 6.1. Socio-economic programmes elaborated and implemented in 50% of groups	●	●	●	○	○	●
Objective 7: Endogenous conservation of natural resources and sustainable livelihoods						
Target 7.1. Customary institutions capable of conserving natural resources/livelihoods	○	○	○	○	○	○

Target 7.2. Traditional knowledge for biodiversity conservation is revived	●	○	○	○	○	○
Target 7.3. Sustainable livelihoods ensured for at least 30% of the clusters of communities	●	○	●	○	○	●
Target 7.4. Compensation mechanisms for loss of livelihood due to human-leopard conflict	○	○	●	●	○	●
Objective 8: Awareness on the conservation of the leopard in the Caucasus is improved						
Target 8.1. >80% of decision makers and authorities are aware of leopard conservation	●	○	●	○	○	●
Target 8.2. >50% of communities in the leopard habitat area support leopard conservation	○	○	●	○	○	●
Target 8.3. >30% of mass media, NGOs, scientific institutions, etc. support leopard conservation	●	○	●	○	●	●
Objective 9: Strengthen international cooperation in leopard conservation						
Target 9.1. Illegal trans-border trade of leopards and derivatives is stopped	○	○	●	●	○	●
Target 9.2. International memorandum on biodiversity conservation in the Caucasus	○	○	●	○	○	●
Target 9.3. Expert group for coordination of conservation and research work on leopards	●	●	●	○	○	●
Objective 10: Optimize existing legislation						
Target 10.1. Analyse existing legal frameworks	○	●	-	○	○	●
Objective 11: Secure funding for all conservation activities for the leopard						
Target 11.1. Funds from internationals and national organizations for leopard conservation	●	○	●	●	●	●

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Appendix I: List of participants of strategic planning workshop on leopard conservation in the Caucasus.

Name	Position	E-mail
Workshop facilitators:		
Dr. Urs Breitenmoser	Co-chair, IUCN/SSC Cat Specialist Group	urs.breitenmoser@ivv.unibe.ch
Dr. Christine Breitenmoser	Co-chair, IUCN/SSC Cat Specialist Group	ch.breitenmoser@kora.ch
Dr. David Mallon	Co-chair, IUCN/SSC Antelope Specialist Group	d.mallon@zoo.co.uk
Country Delegates:		
Armenia		
Mr. Arutiun Galoyan	Deputy Head, Agency of Bioresources Management, Ministry of Nature Protection	
Dr. Mikhail Voskanov	Deputy Head, Division of Animal Resources Management, Agency of Bioresources Management, Ministry of Nature Protection	mvoskan@mail.ru
Mr. Igor Khorozyan	Independent expert	leopard_am@yahoo.com
Mr. Alexander Malkhasyan	Expert, WWF Armenia Branch Office	amalkhasyan@wwfcaucasus.am
Dr. Karen Manvelyan	Director, WWF Armenia Branch Office, Coordinator of WWF Leopard Program in Armenia	kmanvelyan@wwfcaucasus.am
Azerbaijan		
Mr. Gunduz Rahimov	Environmental Dept., Cabinet of Ministers	grahimov@yandex.ru
Prof. Dr. Tariel Talibov	Director, Institute of Bio-resources of Nakhchyvan Branch, National Academy of Science, Azerbaijan	tariyel_talibov@box.az t_talibov@mail.ru
Mr. Elshad Askerov	Conservation Officer, WWF Azerbaijan Branch Office, Coordinator of WWF Leopard Program in Azerbaijan	easkerov@wwfcaucasus.az
Georgia		
Mrs. Ana Rukhadze	Head of Biodiversity Protection Department, Ministry of Environmental Protection and Natural Resources, Georgia	biodepbio@moe.gov.ge anarukhadze@yahoo.com
Dr. Zurab Gurielidze	Director, Tbilisi Zoo, Associated Professor, I. Chavchavadze State University	zgurielidze@zoo.ge zgurielidze@hotmail.com
Mr. Levan Butkhuzi	NGO NACRES	striped.hyena@nacres.org
Mr. Bejan Lortkipanidze	NGO NACRES	
Mr. Alexander Gavashelishvili	NGO GCCW	kajiri2000@yahoo.com
Ms. Khatuna Tsiklauri	Ministry of Environmental Protection and Natural Resources, Georgia	
Ms. Irina Lomashvili	Ministry of Environmental Protection and Natural Resources, Georgia	
Iran		
Mr. Mohammadreza Masoud	Wildlife Bureau of Department of Environment	r_masoud84@yahoo.com
Dr. Mohammad Taghi Farvar	President, NGO CENESTA, Iran; Chair, IUCN CEESP,	taghi@cenesta.org
Prof. Dr. Hormoz Asadi	Azad University, College of Environment, Tehran	hormoz_wildlife@yahoo.com
Mr. Ali Agili	Director, Leopard conservation NGO	aagili9@yahoo.co.uk
Ms. Leili Shamimi*	NGO CENESTA	leili@cenesta.org

Name	Position	E-mail
Russia		
Prof. Dr. Vyatcheslav Rozhnov	Chairman, Commission on rare species of the Ministry of Natural Resources, Deputy Director, Institute of Problems of Ecology and Evolution, Russian Academy of Sciences	rozhnov@sevin.ru
Dr. Viktor Lukarevski	Researcher, Institute of Problems of Ecology and Evolution, Russian Academy of Sciences/WWF-Russia	vlukarevskiy@seu.ru
Prof. Dr. Anatoly Kudaktin	Kabardino-Balkarian Institute of High Mountain Ecosystems	kudaktinkavkaz@mail.ru
Dr. Yuri Iarovenko	Researcher, Dagestan Centre of Russian Academy of Sciences	yarovenko2004@mail.ru
Turkey		
Mr. Mustafa Akincioglu	Deputy Director General for Nature Conservation and National Parks, Ministry of Environment and Forestry, Turkey	makincioglu70@yahoo.com
Mr. Halim Diker	Independent expert	halimdiker@yahoo.com dikerhalim@gmail.com
Mr. Yildiray Lise	Coordinator, NGO Doga Dernegi	yildiray.lise@dogadernegi.org
Dr. Sedat Kalem	Director, Forestry Program/Coordinator for Caucasus, WWF-Turkey	skalem@wwf.org.tr
WWF and IUCN		
Mr. Frank Moerschel	WWF-Germany	Moerschel@wwf.de
Ms. Alice Eymard-Duvernay	WWF-Switzerland	Alice.Eymard@wwf.ch
Dr. Giorgi Sanadiradze	Director, WWF Caucasus PO	gsanadiradze@wwfcaucasus.ge
Mr. Tobias Garstecki	IUCN Programme Office for Southern Caucasus	Tobias.garstecki@iucn.org
Ms. Sophia Mgeladze	Project Administrator, WWF CauPO	smgeladze@wwfcaucasus.ge
Dr. Nugzar Zazanashvili*	Conservation Director, WWF CauPO	nzazanashvili@wwfcaucasus.ge

Appendix II

Template for a National Action Plan for the Leopard in the Caucasus

A national or regional action plan is a tool for the implementation of a higher conservation strategy at the level of an administrative or management unit, most often a country or a province. The Conservation Strategy for the Leopard in the Caucasus provides guidance for the conservation of the leopard on the ecoregional or meta-population level. It defines general goals, common procedures, international cooperation and activities at the range level. In order to concretise and implement the objectives and targets of the Strategy at the country level, National Action Plans need to be developed. This is best done in a participative process – e.g. using a logical framework approach – involving the national authorities in charge, the experts, the stakeholders, and the local people. The following outline provides a checklist for the content of a National Action Plan, which will need to be adapted to the specific situations in each range country.

Outline contents:

Executive Summary

1.   Introduction
•   Scope of the Action Plan
•   Conceptual and/or legal basis (e.g. national legislation, international treaties, range-wide Conservation
        Strategy)
•   Development process and partners involved in the development of the Action Plan

2.   Background Information
Summary of all information relevant for the understanding of the national Action Plan, especially review of the conservation status of the leopard in the respective country.
2.1.   Biology and ecology (description, systematic, life history, etc.)
2.2.   National history of the leopard (long-term development of distribution range and population size)
2.3.   Present distribution, abundance and conservation status (e.g. protected areas)
2.4.   Current protection: legal status, conservation and management policy
2.5.   Conservation actions and relevant research project to date
2.6.   Problem analysis: Identification of threats, constraints and gaps of knowledge

3.   Action Plan Goal and Objectives
Goals and objectives of a National Action Plan should be formulated with reference to the goal and objectives agreed at the range level (see Strategy) and so support the conservation of the entire meta-population and consider all needs for transboundary cooperation for the conservation of specific subpopulations.
3.1.   Overall goal (with reference to the goals at range level from the Strategy)
3.2.   Objectives (with reference to the objectives at range level from the Strategy)

4.   Targets and Actions Required
Targets and actions proposed in the Action Plan may concern any of the following themes:
4.1.   Measures at species/population level, such as
•   Research on ecology, such as land tenure system, social system, diet, demography, dispersal, etc.
•   Research on disease and intrinsic factors (e.g. genetic status)
•   Conservation and management of prey species and populations
•   Establishing monitoring and survey system for leopard and prey populations
4.2.   Measures at landscape level, such as
•   Development of habitat and meta-population model
•   Habitat protection and habitat management

- Establishment and management of protected areas
- Mitigating barriers and creating corridors

4.3. Threat mitigation, e. g.
- Law enforcement (e.g. anti-poaching measures)
- Conflict mitigation (e.g. damage compensation system)

4.4. Generating enabling conditions like
- Improve partnership, liaison and coordination (organisational aspects)
- Improving legal status of species and important sites
- Public awareness and education
- Capacity building (research, wildlife management, human dimension, etc.)

5. Implementation
- Endorsement and enactment
- Organisational aspects of implementation process
- Control and supervision (institutions, methods, rhythm)
- Validity, review and revision of Action Plan

6. References

Appendices
- List of participants of workshop/development process
- List of institutions involved in implementation, supervision and revision of Action Plan
- List of foreign partner institutions for cross-border issues